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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,072	07/25/2003	Dale Spall	46280.0366	3044
26201	7590	02/12/2007		
FISH & RICHARDSON P.C. P.O BOX 1022 Minneapolis, MN 55440-1022			EXAMINER MOSS, KERI A	
			ART UNIT 1743	PAPER NUMBER

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.		Applicant(s)	
	10/628,072		SPALL ET AL.	
	Examiner		Art Unit	
	Keri A. Moss		1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-25 and 51-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-25 and 51-61 is/are rejected.
- 7) ☒ Claim(s) 61 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/25/03</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

1. Claims 6-11, 26-50 and 62-68 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 10, 2006.

Claims 12-25 and 51-61 are pending.

Claim Interpretation

2. It is unclear what applicant means by "molecular marker." In the specification the act of using a molecular marker, molecular marking, is defined as "a precise method of determining whether or not a liquid has been adulterated or altered." In light of the specification, the term "molecular marker" as used in the claims is interpreted to include compounds added to a liquid for purposes of determining whether a liquid has been adulterated.

Claim Objections

3. Claim 61 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Dependent claim 61 does

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not provide a limiting structural element to independent claim 51 but instead describes a process of using.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims **12, 14-23 and 25** are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for hydrocarbon liquids, does not reasonably provide enablement for marking all liquids, such as alcohol or soda syrup. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Applicant has only enabled marking hydrocarbon liquids but has not enabled a marker or method for other liquids. The specification and examples describe only marking hydrocarbon liquids.

The claims describe a liquid marker and a method for marking liquids. The invention relates to identifying liquids by marking them, for example to differentiate among various grades of petroleum products. The background section of the specification describes markers and methods of marking hydrocarbons but does not discuss markers or methods for marking other liquids. One of ordinary skill in the art is familiar with a multitude of marking compounds commonly used for hydrocarbons and is

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familiar with the wavelength range at which these compounds have strong absorbance. Chemical reactions are by their nature unpredictable, therefore, it is unpredictable whether a liquid such a soda syrup would contain components that react with applicant's markers and alter the marker's absorbance properties. All five examples in applicant's specification involve marking hydrocarbon liquids. It would require undue experimentation to make and use the invention with liquids other than hydrocarbons because one would have to test whether both disclosed markers do mark liquids other than hydrocarbons, for example soda syrup.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims **12-25** and **51-61** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what applicant means by "molecular marker" as the specification has not provided a clear definition. In the specification the act of using a molecular marker, molecular marking, is defined as "a precise method of determining whether or not a liquid has been adulterated or altered." Examiner has relied on this definition in her interpretation and considers molecular markers to be compounds used to determine whether a liquid has been adulterated. Based on this definition, it appears that both the first and the second markers are molecular markers as both are used to determine whether the liquid has been adulterated.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims **12-15, 17-18 and 51-56** are rejected under 35 U.S.C. 102(b) as being anticipated by Krutak (USP 5,525,516). Krutak discloses a liquid marker and a method for marking a hydrocarbon liquid comprising adding a first marker having a molar absorptivity of approximately $5 \times 10^4 \text{ L mole}^{-1} \text{ cm}^{-1}$ or greater in the wavelength range of about 600-1000 nm, for example squaraines, phthalocyanines or naphthalocyanines, (column 1 lines 53-60) and adding a second marker that is a molecular marker (column 2 lines 58-61). The markers are molecular markers because they are used to detect adulteration (column 1 lines 13-25). The concentration of 1 ppm is desirable (column 3 lines 30-31). The second marker may be a halogenated hydrocarbon (column 6 lines 55-63).

10. Claims **12-15, 17-18 and 51-56** are rejected under 35 U.S.C. 102(b) as being anticipated by Meyer (USP 6,312,958). Meyer discloses a liquid marker and a method for marking a hydrocarbon liquid comprising adding a first marker having a molar absorptivity of approximately $5 \times 10^4 \text{ L mole}^{-1} \text{ cm}^{-1}$ or greater in the wavelength range of about 600-1000 nm, for example squaraines, phthalocyanines or naphthalocyanines, (column 4 lines 18-25) and adding a second marker that is a molecular marker (column

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3 lines 16-28). The markers are molecular markers because they are used to detect adulteration (column 3 lines 1-13). The concentration of 1-2000 ppm is desirable (column 15 lines 29-34). The second marker may be a halogenated hydrocarbon (column 4 lines 50-54).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims **16, 20-22, 57-60** rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer or Krutak, supra, in view of Anderson II et al (USP 5,474,937). See Meyer and Krutak supra. Neither Meyer nor Krutak expressly teach using a second marker that is 1. non-radioactive, 2. is enhanced by a deuterium atom or 3. is selected from a group of organic solvents listed in applicant's claims 22 or 60. Anderson II teaches labeling chemicals with a non-radioactive isotopic tracer such as deuterium (columns 3-4). The isotope may be added to solvents such as acetone, acetonitrile, benzene, bromobenzene, chlorobenzene, chloroform, cyclohexane, dichlorobenzene, trichloroethylene, diethylether, diglyme, dimethylsulfoxide, dioxane, ethanol, methanol, methylene chloride, nitrobenzene, octane, pyridine, tetrachloroethane, tetrahydrofuran, tetrametholsilane, toluene, trifluoroacetic acid, trifluoroethyl alcohol, xylene, ammonium bromide or acetyl chloride. Chemicals that are being shipped can be labeled by simply adding deuterium to the chemical (column 2 lines 32-37). The amount of isotopic chemical used may be less than 1ppb for certain isotopic compounds and about 1-5 ppb for others (column 3 lines 38-43).

Anderson II teaches that using non-radioactive materials for tagging petroleum products is safer for the environment to stop radioactive tagging materials from being released into the environment during consumption of the petroleum products (column 1 lines 41-58). An additional advantage of the disclosed non-radioactive labels is that they

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can be detected at relatively low levels: less than 1 ppb to 5 ppb (column 3 lines 38-43). Activity at low concentrations saves on the costs of the tags. Therefore, it would have been obvious to modify Meyer or Krutak by using a non-radioactive label as disclosed by Anderson II in order to gain the advantages of an environmentally-safe tag and to gain the additional advantages of saving costs by using the tag in relatively low proportions.

15. Claims **19 and 57** are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer or Krutak in view of Anderson II et al (USP 5,981,283, hereinafter the '283 patent). See Meyer and Krutak, supra. Neither Meyer nor Krutak expressly teach using tagging agents of 1,2-diphenylbenzene; 1,4-diphenylbenze, triphenylmethane, etc as listed in claims 19 and 57. The '283 patent teaches using such compounds as tagging agents for hydrocarbon fuels (column 6 lines 4-15). These tagging agents may be used to determine whether fuel has been adulterated (columns 2-3). They are compatible in small amounts with the intended use of the fuel and are soluble in the fuel in at least small amounts (column 5 lines 44-48). Additionally, they are non-radioactive compounds and therefore are safer for the environment than radioactive tags. Therefore, it would have been obvious for one of ordinary skill in the art to modify method and tags of Meyer and Krutak for hydrocarbon fuels by using the tags disclosed in the '283 patent in order to gain the advantages of tags that are compatible with the intended use of the fuel and are soluble in the fuel and to gain the additional advantages of being environmentally responsible.

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16. Claims **23-25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer, supra, in view of the '283 patent, supra. Meyer discloses a liquid marker and a method for marking a hydrocarbon liquid comprising adding a first marker having a molar absorptivity of approximately $5 \times 10^4 \text{ L mole}^{-1} \text{ cm}^{-1}$ or greater in the wavelength range of about 600-1000 nm, for example squaraines, phthalocyanines or naphthalocyanines, (column 4 lines 18-25) and adding a second marker that is a molecular marker (column 3 lines 16-28). The markers are molecular markers because they are used to detect adulteration (column 3 lines 1-13). The concentration of 1-2000 ppm is desirable (column 15 lines 29-34). The second marker may be a halogenated hydrocarbon (column 4 lines 50-54).

Meyer does not expressly teach using a second marker of essentially 1,2-diphenylbenze, 1.3-diphenylbenzene, triphenylmethane etc. as disclosed in claim 23. The '283 patent teaches using such compounds as tagging agents for hydrocarbon fuels (column 6 lines 4-15). These tagging agents may be used to determine whether fuel has been adulterated (columns 2-3). They are compatible in small amounts with the intended use of the fuel and are soluble in the fuel in at least small amounts (column 5 lines 44-48). Additionally, they are non-radioactive compounds and therefore are safer for the environment than radioactive tags. Therefore, it would have been obvious for one of ordinary skill in the art to modify method and tags of Meyer for hydrocarbon fuels by using the tags disclosed in the '283 patent in order to gain the advantages of tags that are compatible with the intended use of the fuel and are soluble in the fuel and to gain the additional advantages of being environmentally responsible.

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17. Claims **23-25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Krutak, supra, in view of the '283 patent, supra. Krutak discloses a liquid marker and a method for marking a hydrocarbon liquid comprising adding a first marker having a molar absorptivity of approximately $5 \times 10^4 \text{ L mole}^{-1} \text{ cm}^{-1}$ or greater in the wavelength range of about 600-1000 nm, for example squaraines, phthalocyanines or naphthalocyanines, (column 1 lines 53-60) and adding a second marker that is a molecular marker (column 2 lines 58-61). The markers are molecular markers because they are used to detect adulteration (column 1 lines 13-25). The concentration of 1 ppm is desirable (column 3 lines 30-31). The second marker may be a halogenated hydrocarbon (column 6 lines 55-63).

Krutak does not expressly teach using a second marker of essentially 1,2-diphenylbenzene, 1,3-diphenylbenzene, triphenylmethane etc. as disclosed in claim 23. The '283 patent teaches using such compounds as tagging agents for hydrocarbon fuels (column 6 lines 4-15). These tagging agents may be used to determine whether fuel has been adulterated (columns 2-3). They are compatible in small amounts with the intended use of the fuel and are soluble in the fuel in at least small amounts (column 5 lines 44-48). Additionally, they are non-radioactive compounds and therefore are safer for the environment than radioactive tags. Therefore, it would have been obvious for one of ordinary skill in the art to modify method and tags of Krutak for hydrocarbon fuels by using the tags disclosed in the '283 patent in order to gain the advantages of tags that are compatible with the intended use of the fuel and are soluble in the fuel and to gain the additional advantages of being environmentally responsible.

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Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keri A. Moss whose telephone number is 571-272-8267. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)272-1700. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Keri A. Moss
Examiner
Art Unit 1743

KAM 1/31/07


Jill Warden
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